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ABSTRACT

A total of 172 students in 4th, 7th, and 11th grades read 4 stories excerpted from reading and social studies materials featuring main characters as either traditional or nontraditional females, or traditional or nontraditional males. The study sought to determine (1) the impact of male main characters in nontraditional roles on student's sex-role attitudes and story interest; (2) the impact of traditional and nontraditional stories on reading comprehension; and (3) the effect of age on sex-role attitudes, story interest, and reading comprehension. After reading the stories, participants were asked who they thought could do what the main character did and who they thought should do what the main character did. Five possible responses ranged from "only girls" to "only boys." Next, they completed a sex-role attitude inventory, a question indicating level of interest in each story, and four comprehension questions. After reading traditional stories, students tended to stereotype the activity of the main character. However, after reading nontraditional stories, students tended to believe that both males and females could do what the main character did. The higher the grade level, the higher the degree of stereotyping. Females preferred stories with traditional female and nontraditional male characters, but there were no significant preferences among boys. Few differences in comprehension were found for role condition or grade level. (KC)

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EFFECTS OF GENDER-FAIR INSTRUCTIONAL MATERIALS ON FOURTH, SEVENTH, AND ELEVENTH GRADERS' ATTITUDES AND UNDERSTANDING

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Paper presented as part of Symposium, "Research on the Effects of Sex Equitable Instructional Materials" at the Annual Meeting of the

AMERICAN EDUCATIONAL RESEARCH ASSOCIATION
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ABSTRACT

One hundred and seventy-two pupils at three grade levels read four stories featuring main characters depiciting four sex role conditions: traditional female, nontraditional female, traditional male, and nontraditional male. Analysis of dependent measures indicated significant results:

(1) When exposed to traditional stories, pupils were more likely to think that either females or males should and could do the activity of the main character in accordance with stereotypes.

(2) When exposed to nontraditional stories, pupils were more likely to think that both females and males should and could do the activity of the main character.

(3) The higher the grade level, the higher the degree of stereotyping of responses for results in (1) and (2) above.

(4) There were positive correlations between sex-inclusive responses to stories with male main characters for (1) and (2) above and pupils who scored low on a sex-stereotyping questionnaire.

(5) Females preferred stories with traditional female and nontraditional male characters, but there were no significant preferences for males.

(6) Few significant differences in comprehension of the stories were found for role condition or grade level.

Paper presented as part of symposium, "Research on the Effects of Sex Equitable Instructional Materials" at the Annual Meeting of the AMERICAN EDUCATIONAL RESEARCH ASSOCIATION, Montreal, April, 1983

EFFECTS OF GENDER FAIR INSTRUCTIONAL MATERIALS ON FOURTH, SEVENTH, AND ELEVENTH GRADERS' ATTITUDES AND UNDERSTANDING[1]

Kathryn P. Scott

In recent review of the literature presented earlier in this symposium, Candace Schau and I examined over 40 studies on the effects of gender biased and gender fair materials on pupils' sex role attitudes, learning and interest (See Schau & Scott, Note 1). We found that for both girls and boys, gender fair materials produced fewer sex-typed responses than gender biased materials regarding occupations, roles and personality traits (See Barclay, 1974; Berg-Cross & Berg-Cross, 1978; Flerx, Fidler & Rogers, 1976; Greene, Sullivan, & Beyard-Tyler, 1982; Hurwitz & White, 1977; Lutes-Dunckley, 1978; Schau, Note 2; Scott & Feldman-Summers, 1979). For example, in a previous study, I found that children who read social studies or reading materials about girls in nontraditional roles were more likely to think that girls could perform the nontraditional activity of the story than children who read the same materials with boys as main characters (Scott & Feldman-Summers, 1979). This effect occurred whether one or many stories were read. However the effects did not generalize to attitudes about roles not specifically portrayed in the materials, a typical finding.

We also examined pupils' comprehension and recall of instructional materials. Research on gender biased and gender fair materials for this dimension is inconclusive. Some studies report the superiority of

1. This research was funded in part by funds from the Florida State University SRAD program. I wish to thank John Hemphill and Betty Brown for their assistance as well as the pupils and staff at the Developmental Research School of Florida State University, Tallahassee, Florida, whose support and participation made this study possible.

traditional role content for pupil recall (Klein, 1970; Koblinsky, Cruse, & Sugawara, 1978; McArthur & Eisen, 1976). Other studies report the superiority of gender fair nontraditional role content (Frasher & Frasher, 1978; Jennings, 1975) or no differences (Jaudon-Kropp & Halverson, in press).

A third, relevant gender-related characteristic of instructional materials is their appeal to pupils. Interest in materials influences the extent to which pupils are motivated to learn from them. For both print and non-print materials, we found those featuring nontraditional roles were not rejected by pupils and in some cases were preferred over those with sex-typed characters. Of particular interest are findings which indicate that pupils, especially girls, show a preference for a same-sex main character, regardless of role behavior, and that boys often show a preference for stories with traditional male content, regardless of the sex of the characters (Klein, 1970, 1979; Jaudon & Halverson, in press).

Despite the number of studies that have examined gender-related characteristics of instructional materials on pupil attitudes, interest, and learning, there are a number of unanswered questions and a need for further investigation. Four of these gaps are examined in the present study. First, most of the studies have examined children's learning, and few have looked at adolescents' and adults' responses. We need to know if the findings apply to all ages and what developmental trends may exist. It is possible that certain ages may be more receptive or resistant to gender fair materials than other ages.

Second, of the studies measuring attitudinal responses, more have examined females in nontraditional roles than males in nontraditional roles. To date, the effects of stereotyping on male attitudes and

intervention strategies to expand their role options have had less attention in the research literature and in the development of instructional approaches than similar concerns about females (Tibbetts, 1977). And there is considerably more resistance to the notion of nontraditional roles for males than for females (Scott, 1980, 1982). For example, in a study of reading texts, I found many females portrayed in nontraditional roles but few males (Scott, 1981). We need to know the extent to which portrayals of males in nontraditional roles will expand pupils' attitudes, be of sufficient interest to motivate learning, and promote achievement.

It is interesting to note that most studies have found few differences between girls and boys in response to gender biased versus gender fair materials. However, how pupils' existing attitudes about sex role behaviors influence their responses has seldom been examined. While there are numerous studies reporting children's sex role attitudes in general, with boys generally more sex-typed than girls, only one study has reported the relationship between sex role attitudes and responses to instructional materials. Liben and Signorella (1980) found that highly stereotyped children had more difficulty remembering pictures showing nontraditional sex role behavior than children with less stereotypical attitudes. A similar relationship between the extent of sex role stereotyping and responses to written instructional materials is one, so far, unexamined.

Finally, results are inconclusive regarding the effects of gender-related characteristics on pupils' comprehension. As noted previously, the direction of difference, in any, has varied widely, and few studies exist.

The present study was designed to address the four questions outlined above. Its purpose was to ascertain (1) the impact of male main characters in nontraditional roles on students' sex role attitudes and story interest,

(2) the impact of traditional and nontraditional stories on reading comprehension, and (3) the effect of the age of students in (1) and (2) above, and (4) the mediating effect of pupils' role attitudes in (1), (2), (3) above. If it is found that the portrayal of nonstereotyped, nontraditional main characters can improve pupils' perceptions at several age levels with no decrease in their comprehension or interest in the reading material, then an important avenue for social change i.e., reducing sexism, will have been further delineated.

METHOD

Participants

All pupils in the study attended a university research school in Tallahassee, Florida. They were selected for the school to reflect the socioeconomic and racial makeup (80% nonblack and 20% black) of the state of Florida, an equal proportion of females and males, and a statistically normal curve of academic ability at each grade level. Three grades were selected for comparison, with 52 pupils at the fourth grade, 60 pupils at the seventh grade, and 60 at the eleventh grade participating. The pupils participated in the study as part of their regularly scheduled classes with both their teachers and a male graduate student who administered the treatment materials.

Treatment Materials

All pupils read a set of four stories, featuring characters depicting four sex role conditions: traditional female, nontraditional female, traditional male, nontraditional male.[2] Each story had two versions, one with a female main character and one with a male main

2. Samples of story materials are available upon request from the author.

character, such that the same stories were used for the traditional female/nontraditional male condition and the traditional male/nontraditional female condition. Eleven stories were excerpted from reading and social studies materials for use in the study. Four were selected for each grade level after an analysis of reading level and consideration interest level. One story was used at both seventh and eleventh grades. A team of reviewers evaluated each story on its interest to pupils and sex role depiction. There was a high level of agreement among the reviewers for each story used. The stories were pilot tested with a small number of pupils. The stories were counter-balanced and randomly assigned to each participant.

Dependent Measures

Sex role attitudes. There were three measures of sex role attitudes. First, the pupils were asked two questions after reading each story: Who do you think can do what (the main character)did in the story? Who do you think should do what (the main character) did in the story? These questions was followed by five possible responses: (1) only girls; (2) mostly girls, some boys; (3) the same number of girls and boys; (4) mostly boys, some girls; and (5) only boys (Schau & Kahn, 1980). The scores ranged from 1 to 5, with the lower number indicating the greater proportion of girls who could engage in the activity. Second, at the conclusion of the study, participants completed a 29-item inventory[3] to assess sex role attititudes. Each item consisted of a statement which was either traditional in its role orientation (e.g., "Boys don't like girls who are smarter than they are") or nontraditional (e.g., "It's okay for father to do the cooking"). Participants could

3. The sex role inventory was developed by LaRae Glennon and staff for Project Equality, Highline School District, Seattle, Washington, in 1974, and is available from the author.

respond to each statement with true, false, or don't know. Inventory scores were obtained by summing each participant's nontraditional responses, where a nontraditional response is defined as agreement (true) with a nontraditional statement or disagreement (false) with a traditional statement. Scores could therefore range from 0 to 29 with higher scores reflecting less stereotyping than lower scores.

Story interest. The participants were asked to complete one question indicating level of interest in each story and one for attractiveness of main character. Each question was followed by a five-point, equal interval, bipolar scale. The lower the number scored, the more positive the evaluation. The two questions were as follows: How much did you like the story? How much do you like the main character?

Comprehension. For each story, pupils responded to four multiple choice questions developed by a reading specialist to measure their recall and understanding of the story.

RESULTS

A 3 (grade level of participant) x 2(sex of participant) x 4 (role of story character) analysis of covariance with repeated measures on the last factor was conducted on the two dependent measures for pupils' sex role attitudes. For the measures of comprehension, story interest and attractiveness of main character, a 3(grade level of participant) x 2(sex of participant) x 2(sex of story character) x 2(role of story character) analysis of covariance with repeated measures on the last two factors was used. All of the analysis used reading level and IQ scores as covariates. Duncan's multiple range tests for significance at the .05 level or greater were performed on means for main effects and interactions.

Correlations were obtained for all dependent measures based on pupils' sex role inventory scores. Since only pupils who completed all responses were included, the analyses were based on 150 pupils, 45 at grade four, 53 at grade seven, and 52 at grade eleven.

Sex role attitudes. An analysis of responses to the question of "Who can do what the main character did" yielded three main effects. First, female pupils (M = 3.15) were more likely than males (M = 3.25) to think that both girls and boys could perform the activities of the main characters, F (1, 142) = 4.58, MS = 1.82, $p<.03$. Second, differences by grade indicate that fourth graders (M = 3.07) and seventh graders (M = 3.18) were less stereotyped than eleventh graders (M = 3.31), F (2, 142) = 4.95, MS = 1.97, $p<.008$. Third, pupils responded to the question differently according to the role behavior portrayed in the story, F (3, 142) = 48.35, MS = 23.39, $p<.0001$. Those reading the story with the traditional female character were more likely to think mostly girls could do the activity while those with the traditional male story gave the highest proportion of mostly boys' responses. The nontraditional stories about both males and females elicited the most sex inclusive responses (see Figure 1). There were no interactions.

For responses to the question "Who should do what the main character did," the results were similar to the "Who can" results for role condition, F(3, 142) = 39.75, MS = 23.39, $p<.0001$. With almost identical means (see Figure 1), traditional female stories elicited the most female responses, traditional male stories the most male responses, and nontraditional stories the most gender balanced responses. In addition there was a main effect for grade of participant with fourth grade pupils (M = 3.05) more sex-inclusive than seventh grade pupils (M = 3.23) or eleventh

grade pupils (M = 3.24), F(2, 142) = 3.18, MS = 1.93, p<.04.

Comprehension. Comprehension scores indicated a main effect for grade, with seventh grade pupils scoring lowest (M = 5.22) and eleventh grade pupils scoring highest (M=4.58), F(1, 149) = 20.15, MS = 21.03, p< .0001. A sex of character by role interaction showed that the comprehension on the traditional female stories (M = 4.64) and nontraditional male stories (M = 4.67) was significantly better than on the traditional male stories (M = 5.03) and nontraditional female stories (M = 5.01), F(1, 149) = 33.72, MS = 19.37, p<.0001. There were no other main effects or interactions.

Interest. An analysis of responses to the question "How much did you like the story?" yielded two main effects and three interactions (see Table 1). Females (M = 2.28) liked the stories better than males (2.51), and fourth graders (M = 1.99) liked the stories better than seventh (M = 2.55) or eleventh (M = 2.58) graders. A sex of character by role interaction indicated that the nontraditional female stories (M = 2.50) and traditional male stories (M = 2.48) were liked less than the traditional female stories (M = 2.22) (and also less than the nontraditional male stories, M = 2.35, but not at the .05 level of significance).

A three way interactions for sex of participant, sex of character, and role indicated: (1) when female pupils read stories about traditional females (M = 1.904), they like them better than the nontraditional female (M = 2.53) and traditional male (M = 2.49) stories, (2) when female pupils read stories about nontraditional males (M = 2.18), they also liked them better than the nontraditional female and traditional male stories, and (3) there were no differences among the preferences of the male pupils.

A three-way-interaction for grade, sex of character, and role also showed that fourth graders rated all of the stories higher than the other two grades except for a seventh grade preference for the traditional female story (M = 2.01) and a twelfth grade preference for the nontraditional male story (M = 2.29).

Attraction to Main Character. Responses to the question "How much do you like (the main character)?" showed a main effect for sex of pupil and role and two interactions (See Table 1). Females (M = 2.07) liked the story characters better than males (M = 2.44). Main characters in traditional roles (M = 2.17) were preferred over those is nontraditional roles (M = 2.31). An interaction effect for sex of pupil and sex of character indicated that females preferred the traditional female character (M = 1.94) over all others and that there were no differences for male pupils.

A three way interaction for sex of pupil, role, and grade indicated that nontraditional characters for seventh grade females (M = 1.95) and characters in traditional roles for fourth grade females (M = 1.77) and males (M = 2.03), seventh grade females (M = 2.05), and eleventh grade females (M = 2.07) were rated significantly more positive than other groups. Next highly rated were traditional (M = 2.18) and nontraditional (M = 2.13) characters by fourth graders follwed by traditional characters by seventh grade males (M = 2.33) and nontraditional characters by eleventh grade females (M = 2.33). Least liked characters were nontraditional ones by seventh grade males (M = 2.69) and eleventh grade males (M = 2.63) as well as traditional ones by eleventh grade males (M = 2.79).

Sex Role Attitude Inventory. Correlation tests for scores on the pupil sex role attitude inventory and each dependent measure revealed

significant differences at greater than .05 level significance for responses to stories with male characters on three measures. First responses to "Who can do what main character did?" indicated a positive relationship between sex-inclusive responses and less stereotyped pupils for both traditional male stories (.17) and nontraditional male stories (.18). Second "who should do what main character did?" a similar relationship was evident for responses to traditional male stories (.25). Third, responses of pupils who were less stereotyped were correlated positively with preferences for the nontraditional male characters (.21).

DISCUSSION

This study yields several findings of particular interest. First, exposure to male as well as female main characters engaged in nontraditional role activities increased pupils' perceptions of the number of males or females who can and should participate in these activities. Particularly for less sex stereotyped pupils responses to stories with male characters indicated less stereotyped perceptions. Second, there was no difference in comprehension between stories with traditional and nontraditional characters. Third, although females generally liked the stories better than males and liked the stories with traditional female content better than those with traditional male content, males did not show a preference among story conditions. Fourth, significant differences among age groups indicated that fourth graders had the most flexible role attitudes and eleventh graders had the most stereotypes in response to all stories, but there were few meaningful interactions with other variables.

Consistent with previous findings both boys' and girls' responses were affected by a single story featuring a character in nontraditional

or traditional sex role activities (See Figure 1). When pupils read about an activity that was traditionally male, for example sky diving, they were more likely to think that females can and should engage in the activity if the story featured a female main character. When pupils read about an activity that was traditionally female, for example taking care of a baby, they were more likely to think that males can and should take care of babies if the story had a male main character. The acceptance of nontraditional male activities is particularly noteworthy since stereotyped attitudes about males have been more pervasive and resistant to change (Tibbetts, 1977; Scott, 1981). However, it is not known how long the pupils retained these perceptions of nontraditional role activities.

Pupils of both sexes with less stereotyped attitudes in general responded to stories about males in both traditional and nontraditional roles with more sex inclusive responses. This finding suggests that the degree of overall sex-typing in attitudes may be particularly crucial in shaping responses to males in instructional materials. It is interesting to note that females had more sex-inclusive responses than males overall, a finding consistent with previous research (Shepherd & Hess, 1975).

Results of pupils' comprehension showed differences by age and an interaction between sex of character and role. The inferiority of the seventh graders' comprehension may be explained, however, by the differing stories used. In order to have appropriate readings for each grade level, different stories were used for each. Therefore the group for seventh grade may have had a greater degree of difficulty than was expected. In a similar vein the superior comprehension of pupils at all

levels on the traditional female and nontraditional male stories may be explained by the use of the same stories for this story condition. That is, the level of difficulty for the nontraditional female/traditional male stories may have unexpectedly been greater than that of the traditional female/nontraditional male stories. However, a second, though less likely, explanation suggests a greater ease in understanding stories with traditional female content even when males perform these roles, an interesting notion on which to speculate.

In any event differences in comprehension based on the portrayal of traditional and nontraditional roles are not supported (cf. to studies cited earlier). This finding strengthens the argument for including nontraditional roles in materials without the risk of reducing reading comprehension.

Pupils' evaluations of their interest in these stories reveal differences for females and males. In contrast to previous studies in which they preferred same-sex main characters, females showed a preference for the stories with traditional female activities, for both female and male main characters. Males in the study liked all stories about equally well, although less well than the girls overall. It is evident, therefore, that stories about males in nontraditional roles were well-received by both sexes. This is an important finding for educators and publishers of instructional materials who may fear that pupils would not be interested in reading about these activities. In addition, the use of high quality stories, as were those selected for this study, may contribute to their appeal for all pupils.

Finally, differences among the three age groups indicate the existence of a developmental trend with pupils' attitudes more stereotyped in

early and later adolescence than in the elementary years. However, with one exception regarding interest in the materials, there were no significant interactions between grade and role condition, the main focus of this study. It is clearly evident that adolescents' sex role attitudes about who should engage in activities and knowledge about who can perform gender-related activities are affected similarly to fourth graders' by a single story featuring a traditional or nontraditional role.

As a result of the findings of this study, educators and publishers of instructional materials can expect significant differences with the use of gender fair materials. For fourth graders and above, pupils' knowledge about sex roles will be expanded, their judgments about appropriateness show more flexibility, and neither their interest in reading or comprehension be diminished. Of special significance is the potential for males as well as females to be depicted in a variety of role behaviors and the resulting impact on attitudes of those who use these materials.

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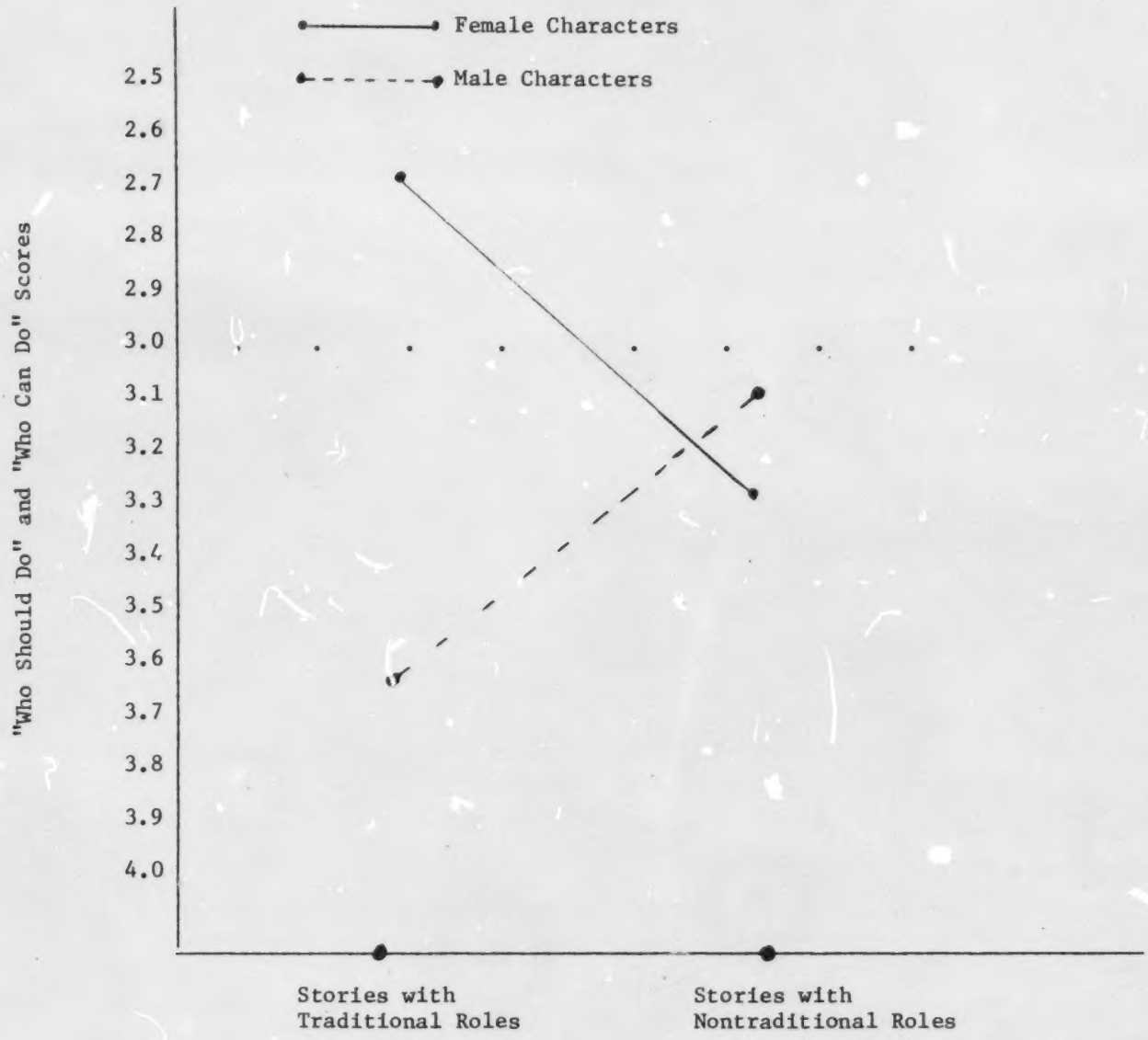

Figure 1. Mean "who should do" and "who can do" scores for female characters and male characters (2.0 is "mostly females, some males;" 3.0 is "the same number of females and males;" and 4.0 is "mostly males, some females.")

TABLE 1

Summary of Analysis of Covariance with Repeated Measures for Two Dependent Measures

Source of Variation	"How much like story?" df	MS_e	F	"How much like character?" df	MS_e	F
Covariates	2	.25	.11	1	4.46	1.73
Reading Level	1	.14	.06	1	.54	.21
IQ	1	.49	.22	2	3.42	1.33
Main Effects						
Grade	2	19.61	8.82**	2	6.54	2.54
Sex	1	9.74	4.38*	1	21.64	8.41**
Sex of Character	1	.43	.31	1	.92	1.04
Role	1	.81	.91	1	3.38	4.08*
Two-Way Interactions						
Grade x Sex	2	.26	.12	2	2.77	1.08
Sex C x Grade	2	1.39	1.01	2	.13	.15
Sex C x Sex	1	.81	.58	1	4.10	4.62*
Role x Grade	2	1.95	2.19	2	.56	.67
Role x Sex	1	1.00	1.12	1	.33	.40
Sex C x Role	1	4.68	5.72*	1	.10	.12
Three-Way Interactions						
Sex C x Grade x Sex	2	.37	.28	2	3.52	.23
Role x Grade x Sex	2	.04	.04	2	1.20	3.96*
Sex C x Role x Grade	2	9.64	13.80***	2	1.51	1.84
Sex C x Role x Sex	1	14.25	20.39***	1	1.21	1.46
Sex C x Role x Grade x Sex	2	.37	.45	2	.80	.98

* $p < .05$

** $p < .01$

*** $p < .0001$